

IN THE CLAIMS:

1. (Currently Amended) A vacuum suction head comprising:

a suction pad which contacts ~~and sucks in vacuum~~ a sucking surface of an object to be sucked and sucks the object with vacuum contact;

a shaft which holds said suction pad at one end, and ~~is provided with~~ comprises an air charging and discharging hole for charging gas into and discharging gas from said suction pad;

a casing part which has a cylindrical space for regulating a movable range of said shaft and holding said shaft in a slightly movable manner; and

an elastic supporter which elastically supports said shaft in said casing part, in a freely and slightly movable manner in an axial direction of said casing part and in a direction diagonal to the axial direction, said shaft comprising a step having a flange shape at a substantially intermediate position in said casing part, said casing part comprising a cylindrical part which provides a space for holding said elastic supporter in a freely deforming manner in an inner side, a first casing plate which has a first opening and encloses one end of said cylindrical part, and a second casing plate which has a second opening and encloses another end of said cylindrical part, said elastic supporter comprising a first spring which is held between said first casing plate and said step, and a second spring which is held between said second casing plate and said step.

2. (Canceled)

3. (Currently Amended) The vacuum suction head according to claim [[2]] 1,
wherein;

said first spring and said second spring are coil springs;[[.]] and

an aperture-diameter of said first and second openings is larger than an outer
5 diameter of said shaft and smaller than an outer diameter of said first spring and said
second spring.

4. (Currently Amended) The vacuum suction head according to claim [[2]] 1,
wherein;

said suction pad is arranged closer to [[on]] said second opening [[side]] than said
first opening;[[.]] and

5 a compression force of said first spring is greater than a compression force of said
second spring when said suction pad is in a no-load state.

5. (Currently Amended) The vacuum suction head according to claim 1, wherein
said suction pad ~~includes~~ comprises a sucking part which uses a plate-shaped member and
has a plurality of independent convex parts and concave parts on one surface of the
member, an air tight part which is formed into an annular shape at an outer peripheral
5 position of said plate-shaped member surrounding said sucking part, a groove which acts as
a passage for discharging gas of said sucking part, and a vacuum suction disk which has
[[with]] an opening for externally discharging gas in said groove.

6. (Original) The vacuum suction head according to claim 5, wherein said suction pad provides a skirt pad which is formed so as to surround said vacuum suction disk, and shields outside air from surrounding space of said vacuum suction disk when said vacuum suction disk approaches the object to be sucked up to a predetermined position.

7. (Original) The vacuum suction head according to claim 1, wherein said suction pad is composed of a flat resin without asperity.

8. (Currently Amended) A vacuum suction device comprising;

a plurality of vacuum suction heads, each vacuum suction head ~~providing~~
comprising:

a suction pad which contacts ~~and sucks in vacuum~~ a sucking surface of an
5 object to be sucked and sucks the object with vacuum contact;

a shaft which holds said suction pad at one end, and ~~is provided with~~ comprises an
air charging and discharging hole for charging gas into and discharging gas from said
suction pad;

a casing part which has a cylindrical space for regulating a movable range of said
10 shaft and holding said shaft in a slightly movable manner; and

an elastic supporter which elastically supports said shaft in said casing part, in a
freely and slightly movable manner in an axial direction of said casing part and in a
direction diagonal to the axial direction, wherein said plurality of vacuum suction heads

contact ~~and suck in vacuum~~ the surface of the object to be sucked ~~and suck with vacuum~~
15 contact, said shaft comprising a step having a flange shape at a substantially intermediate
position in said casing part, said casing part comprising a cylindrical part which provides a
space for holding said elastic supporter in a freely deforming manner in an inner side, a first
casing plate which has a first opening and encloses one end of said cylindrical part, and a
second casing plate which has a second opening and encloses another end of said
20 cylindrical part, said elastic supporter comprising a first spring which is held between said
first casing plate and said step, and a second spring which is held between said second
casing plate and said step.

9. (Currently Amended) A table comprising;

a plurality of vacuum suction heads, each vacuum suction head ~~providing~~
comprising:

a suction pad which contacts ~~and sucks in vacuum~~ a sucking surface of an
5 object to be sucked and sucks the object with vacuum contact;

a shaft which holds said suction pad at one end, and ~~is provided with~~
comprises an air charging and discharging hole for charging gas into and discharging gas
from said suction pad;

a casing part which has a cylindrical space for regulating a movable range of
10 said shaft and holding said shaft in a slightly movable manner; and

an elastic supporter which elastically supports said shaft in said casing part,

in a freely and slightly movable manner in an axial direction of said casing part and in a direction diagonal to the axial direction, ~~wherein~~ said vacuum suction heads [[are]] being arranged on a base plate with said suction pads facing upward, [[and]] wherein gas is

15 [[blew]] blown from said suction pad to float the object to be sucked mounted on said suction pad, and gas is discharged from said suction pad to contact and suck ~~in vacuum~~ the sucking surface of the object ~~to be sucked~~ to said suction pad via vacuum contact, said shaft

comprising a step having a flange shape at a substantially intermediate position in said casing part, said casing part comprising a cylindrical part which provides a space for

20 holding said elastic supporter in a freely deforming manner in an inner side, a first casing plate which has a first opening and encloses one end of said cylindrical part, and a second casing plate which has a second opening and encloses another end of said cylindrical part,

said elastic supporter comprising a first spring which is held between said first casing plate and said step, and a second spring which is held between said second casing plate and said

25 step.

10. (Original) The table according to claim 9, further comprising positioning means for positioning said object to be sucked.